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ABSTRACT

An overview of research focused on the prediction of dangerous behavior among criminals and mental health patients is presented. Studies (N=3) conducted by the Bureau of Special Projects Research, New York Department of Mental Hygiene are described, as well as studies providing evidence on clinical and statistical predictions. The findings of these studies address the following areas of concern: (1) the inability of clinicians to achieve a level of prediction which exceeds the level obtainable strictly by chance; (2) the vast overprediction of dangerous behavior; and (3) the superiority of statistical predictions in determining the potential extent of dangerous behavior. (Author/HLM)

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A REVIEW OF THE RESEARCH ON THE PREDICTION OF DANGEROUSNESS

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It has been estimated in the United States, that 50,000 mentally ill persons are committed each year because of dangerousness. Another 30,000 to 60,000 criminal defendants are evaluated to determine dangerousness for placement and treatment purposes (Scheidemandel and Kanno, 1969). It is apparent from these figures, that use of the dangerousness standard for commitment, differential treatment, detention, and release purposes is widespread in both the Mental Health and Criminal Justice systems. In light of this widespread use, one might expect that dangerousness can be reliably and accurately predicted. Furthermore, since the psychiatrist has most often been the professional entrusted with the responsibility of prediction, it might also be expected that his accuracy in such predictions has been documented. The fact of the matter, however, is that there is no evidence in the research literature that psychiatrists or other clinicians can predict dangerous behavior beyond the level of chance. While research demonstrates the improved accuracy of statistical predictions over clinical predictions and the ability of statistical predictions to reduce the number of individuals incorrectly identified as dangerous, the most accurate prediction, given the substantial false positive rates, is still the one that says no one will be dangerous (Steadman , forthcoming).

Despite the research evidence, there is no indication that the use of the dangerousness standard has diminished. Given its continued application, as well as the very limited amount and type of empirical data available on the subject, the need to refine our measurements as well as to expand our level of enquiry seems apparent.

I have been requested to review the research conducted in the Special Projects Research Unit which focuses on the prediction of dangerous behavior. What follows then, is an overview of this research as well as an attempt to integrate the findings with the research of others.

Research Conducted in SPRU

The follow-up of the Baxstrom patients was the Unit's earliest enquiry into the area of dangerousness. It was also one of the earlier studies to appear in the research literature on the inaccuracy of clinical predictions of dangerous behavior. (Steadman & Cocozza, 1974). Following the 1966 U.S. Supreme Court ruling in Baxstrom v. Herold that due process protection had not been extended to a group of dangerous, mentally ill patients retained in two maximum security correctional mental hospitals, all 967 inmates were transferred to regular security mental hospitals. Over the four years that they were followed through mental hospitals and the community, 20% were assaultive at some time. Were it not for the court's decision to release these patients, all patients would have been presumed dangerous and retained in the maximum security hospital whereas but one in five did indeed demonstrate violent behavior. One limitation of the study is that there was no explicit psychiatric prediction of dangerousness. Since the patients remained hospitalized prior to the court ruling, it was assumed that they were considered dangerous by the hospital psychiatrists. It is possible that at least some of the patients were retained for reasons other than their dangerousness.

A better opportunity to study psychiatric predictions of dangerous behavior presented itself with the revision of the NYS Criminal Procedure Law in 1971. Under the revised statute, two psychiatrists were required to provide the court with testimony as to whether indicted felony defendants who were incompetent to stand trial were dangerous. Of the 257 males for whom a psychiatric determination was made, 154 were evaluated as dangerous and 103 were evaluated as not dangerous. Analysis of the data gathered from prior records of both groups of patients and from a three year follow-up yielded two findings which reflect the lack of any special expertise on the part of psychiatrists to accurately predict dangerous behavior. First, both the dangerous and non-dangerous patients were markedly

similar on all variables examined except one, current alleged offense. This was the only factor which showed a strong and statistically significant relationship with the psychiatric predictions. Seventy-five percent of those individuals charged with violent crimes against persons were found dangerous, while only 25 percent of those charged with minor offenses were found dangerous. This finding suggests that any person provided with the same information about a defendant's alleged offense could have made predictions similar to those of the psychiatrists (Cocozza and Steadman, 1976). Second, on all comparisons of subsequent violent behavior, the patients who were evaluated by psychiatrists as dangerous were not more dangerous than those evaluated as non-dangerous. Although fifty-one percent of the dangerous were assaultive while hospitalized, as compared to 39% of the non-dangerous, the difference was not statistically significant.[1] Similarly, after release, 16% of those evaluated as dangerous were assaultive resulting in re-hospitalization or arrest as compared to 23% of the non-dangerous group. Again, there was no difference between the two groups beyond that obtainable by chance. Furthermore, while the false-positive rate for in-hospital assaultiveness was only 1-1, the rate for community assaultiveness was approximately 5-1. It is important to mention at this point, that attempts to predict behaviors which occur only infrequently are invariably associated with very high false positive rates, that is, identifying as dangerous many individuals who will not display such behavior. (Shah, 1975). The low rates of violent behavior, even in what are thought to be high risk groups, has been documented by others (c.f. Zitrin et al., 1976). In the CPL study mentioned here, the relatively low clinical false positive rate of 1-1 for in-hospital assaultiveness was more a reflection of the relatively high occurrence of assault rather than of any increased predictive ability on the part of the psychiatrist.

A third study which provided an opportunity to evaluate clinical accuracy in predicting dangerous behavior was the reassessment of the efficacy of Patuxent Institute for Defective Delinquents in Maryland (Steadman, 1977). Three study groups were clinically evaluated as dangerous but received varying amounts of detention and treatment due to judicial intervention. One group was evaluated as not dangerous and was not admitted. Of all those clinically evaluated as dangerous, 33.8% were subsequently arrested for violent crimes. However, 33.3% of those in the group evaluated as not dangerous were also arrested for violent offenses. The conclusion, therefore, is consistent with the one in the Baxstrom and CPL studies. Specifically, there was no particular expertise on part of the clinical staff to accurately identify those who would be dangerous.

Since the error rates of the clinical predictions in the Baxstrom and CPL studies were high (Baxstrom 4-1, CPL 5-1), an attempt was made to determine the extent to which statistical prediction could improve them.

For the Baxstrom patients, age and the Legal Dangerousness Scale (a summary scale of prior criminal history) were the two variables which, when used together, best discriminated between those patients with assaults and those without. Eighty percent of those patients who were assaultive after release to the community fell into the high risk group, those under 50 years of age with a more serious criminal history. Although the high risk patients who were assaultive in the community represented less than one-third of all the patients in this category, two patients thereby being incorrectly identified as dangerous for every one patient correctly identified, this false positive rate of 2-1 was clearly an improvement over the 4-1 rate obtained with the clinical prediction.

Similarly, with the CPL patients, statistical prediction was successful in increasing the accuracy over the psychiatric prediction and in reducing the

false positive rate. For in-hospital assaultiveness, the overall accuracy rate of the statistical prediction was 63% as compared to 46% for the psychiatric prediction. The false positive rate was reduced from .95 - 1 to .86 - 1. The improvement in the corresponding rates for community assaultiveness and subsequent arrests for violent crimes were even more dramatic. For community assaults while the accuracy of the statistical prediction improved 11% over the psychiatric prediction, the error rate was reduced from 3.8 - 1 to 2.4 - 1. The accuracy of the statistical prediction for subsequent violent arrests was 75% compared to 43% of the clinical predictions and the false positive rate was reduced from 5.4 - 1 (81 - 15) to 2.2 - 1 (24-18). In both studies then, it is clear that statistical prediction was an improvement over clinical prediction.

Although the research unit has been involved in other studies related to dangerousness, it is worthwhile at this point to briefly review the literature on prediction and to integrate the empirical data with the findings from the Baxstrom, CPL, and Patuxent studies. In doing so, it will become apparent that the conclusions from all three studies, that clinicians, and psychiatrists in particular, have not demonstrated any special ability to predict dangerous behavior and that statistical prediction is superior to clinical prediction are not isolated conclusions. They are, in fact, very consistent with the findings of others.

Review of the Empirical Findings on the Prediction of Dangerous Behavior

While the literature on the prediction of dangerous behavior appears to be extensive, only a small proportion of it is empirically grounded and contains relevant primary data. As has been stated elsewhere by Steadman (1978) and Cocozza and Steadman (1976), much of the literature, while no doubt important, contains more ideology than empiricism. Furthermore, much of it is only indirectly related to prediction, and, in some instances, it is even inappropriately associated with

prediction. The primary focus here will be on those empirical studies which relate directly to prediction.

Evidence on Clinical Prediction

There are three studies in addition to the three mentioned above which clinically attempt to estimate future dangerous behavior. Kozol and his colleagues (1972) concluded, in contrast to the findings above, that dangerousness could be reliably diagnosed. Their findings were based on a follow-up of two groups of dangerous offenders released from the Bridgewater State Hospital program for violent sex offenders. Of those released by the committing courts against psychiatric advice (N=49), 35% were arrested for violent crimes. Of those released after treatment with psychiatric approval (N=82), 6% were arrested. While Kozol interpreted these recidivism rates as indicative of the reliable diagnosis of dangerousness, others have questioned this conclusion in light of the exceedingly high inaccuracy of the 65% who did not recidivate despite having been evaluated as dangerous (Monahan, 1973). Furthermore, the study's findings are questionable on methodological grounds. The length of time at risk of rearrest could have been as much as four years longer for those dangerous patients released against psychiatric advice. The additional time at risk could account for the difference in the recidivism rates between the two groups. The study's findings, therefore, must be seriously questioned.

Thornberry and Jacoby (1974) followed-up a group of 596 patients who were transferred from a hospital for the criminally insane in Pennsylvania following a court ruling (Dixon v. Attorney General of the Commonwealth of Pennsylvania, 1971) that proper review had not occurred in their retention. During the four year follow-up period, 14% of the 438 subjects at risk in the community displayed some type of assaultive behavior. Thus, for every seven patients predicted to be too dangerous

for release, only one actually demonstrated violent behavior.

In the third, and final study, Levinson and Ramsey (1977) assessed the accuracy of predictions of dangerous behavior made by paraprofessionals in an emergency mental health unit. While they were incorrect in 71% of the cases in which they predicted the person to be dangerous, fewer of those who were predicted not dangerous actually were, making the overall false positive rate 2.4-1. Paraprofessionals, then, were able to achieve a better false positive rate than most of the psychiatrists or mental health teams led by psychiatrists in the studies already reviewed (Steadman, forthcoming).

The findings in these studies, then, are overwhelmingly consistent with the findings in the studies conducted in our unit. Together, they reflect the inability of clinicians to achieve a level of prediction which exceeds the level obtainable strictly by chance.

Other studies which relate to prediction involve statistical prccedures. As demonstrated in the Baxstrom and CPL studies, statistical predictions were an improvement over clinical predictions. These improvements are consistent with the generally lower false positive rates of statistically derived estimates demonstrated in the studies below. As such, these studies furtherhighlight the inadequacy of clinical predictions, particularly since it means the unnecessary deprivation of rights of thousands of people each year.

Evidence on Statistical Prediction

A series of studies in addition to the two mentioned above attempt to statistically determine which individuals will be violent at some future point in time.

Although Wenk and colleagues made two attempts to predict violence for parolees in the California Department of Corrections, in both instances the

estimations were so inaccurate as to render them useless (Wenk, et al., 1972). In a third attempt, although the false positive rate was still too high to be of practical use, (8 - 1) multivariate statistical procedures proved to be more successful in isolating those youths who would commit a violent act upon release from the California Youth Authority than the informal practice of using a history of prior violence (Wenk and Emrich, 1972).

More positive results were achieved by Hedlund and colleagues (1973). By using stepwise discriminant fuction analysis they were able to accurately identify over 90% of the patients who were assaultive while hospitalized in mental hospitals in Missouri. Despite a low false positive rate of 1.5-1 the researchers still acknowledged the dilemma of being wrong more often than right. Discriminant analysis was also successful in reducing the clinical false positive rate of 6-1 in the Dixon study to 3.3-1. (Thornberry and Jacoby, 1974; Jacoby, 1975).

The latest study known to have achieved any success with statistical prediction was one by Koppin (1977). By employing psychiatric and social history indicators in combination with the Legal Dangerousness Scale, a false positive ratio of 1.1-1 was obtained for a group of released criminally insane patients who were subsequently arrested for violence. In an equally recent study, a scale similar to the LDS (Pruesse and Quinsey, 1977) was developed and used at the maximum security prison in Penetang, in Ontario. No statistically significant relationship was found, however, between the scale and violent behavior.

The foregoing, then, is a brief review of the primary research most directly related to the prediction of violent behavior. What the findings most clearly show, whether they are clinically or statistically derived, is that dangerous behavior is vastly overpredicted. If the task of research, as Monahan (1978) suggests, is to provide the most accurate estimates possible of the relative risks to the individual and to society, one would have to determine, based on

the research findings, that as far as the rights of the individual are concerned, statistical predictions are clearly superior. The most clearcut superiority of statistical procedures was demonstrated in those instances where the criteria used to determine accuracy of the prediction was arrest for violent crimes. It has been suggested that further specification in the settings for which predictions of violence are made must be introduced before the potential value of the statistical predictions can be estimated (Steadman and Cocozza, 1978). In this regard, an understanding of the social context in which violent acts occur seems necessary (Steadman and Cocozza, 1978; Monahan, 1978; Schlesinger, 1978). Our research unit is currently involved in a study which will examine the role played by situational factors in precipitating violent behavior. At this point in time, however, given the absence of an adequate prediction instrument and the relatively infrequent occurrence of violent behavior in the community, the best prediction is still the one which says that no one will be dangerous.

Implications

What do the research findings mean for the practitioner who is charged, on several levels, with the responsibility of predicting dangerous behavior? First, it should be apparent, by now, that mental health professionals have been thrust into the center of a very complex public policy issue. The extent to which the state can be justified in detaining as dangerous individuals who would not actually display such behavior has not been determined. By being required to make predictions, you have been forced to function in a capacity which deviates from your traditional therapeutic roles without, I might add, the benefit of practically any guidelines. On a more practical level, it should be understoood that psychiatrists have no better ability to predict who will be dangerous than each of you. In doing so, however, it must be kept in mind that there are no factors which have been reliably and validly shown to clearly differentiate between those who

will or will not demonstrate dangerous behavior. The most beneficial determinations are those which take into consideration information about the past circumstances of community violence and the situations into which the individual is returning (Steadman, forthcoming). It should also be kept in mind that all predictions inherently involve a proportion of cases where the prediction will be incorrect. The issue here is to recognize that the right of an individual not to be detained has to be balanced with society's concern for public safety.

Finally, since the practitioner continues to play a primary role in involuntary confinement decisions, he remains an important source in the development of more accurate prediction devices. In this capacity, he has the potential to expand our data base by systematically following-up those persons for whom predictions are employed. Only in this way will we be able to examine for what groups, under what conditions more accurate predictions of future violence can be made.

FOOTNOTE

1. After regrouping the patients into those 1) assaultive only in hospital; 2) assaultive only in community; and 3) assaultive in both hospital and community, a statistically significant difference was found between the dangerous and non-dangerous patients who were assaultive in the hospital. Thus, in the hospital environment, the psychi tric predictions were somewhat more accurate, although psychiatrists still incorrectly identified as dangerous 56% of the group who were not assaultive in the hospital.

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